APPENDIX A

BIOLOGICAL RESOURCES INVENTORY, OAK WOODLAND INVENTORY, AND BIOLOGICAL RESOURCES CONSTRAINTS MAP

Section 1 - General Information

1.1. Background and History

Biological Resources Inventory and Constraints Map

The County of San Luis Obispo has identified a need for assessing the completeness, consistency, and accuracy of the existing county biological resource GIS databases, identifying gaps in the databases, and filling those gaps by acquiring additional data. Data acquisition would include obtaining existing databases from outside sources, mapping resources through aerial photography, and conducting on-the-ground surveys to verify data accuracy and identify biological resources that are not identifiable from aerial photography (such as resources located underneath tree canopies). Once data is acquired through these means, the supplemented county GIS databases would then be used to create a county-wide Biological Resource Constraints Map to be used to update the County Conservation Element and to plan future development within the county to minimize impacts to sensitive resources.

The Biological Resource Constraints Map would indicate areas containing sensitive biological resources including the following:

- Sensitive habitats including oak woodlands
- Sensitive plant and animal species
- Rivers
- Creeks (both perennial and intermittent)
- Wetlands
- Vernal pools
- Riparian areas
- Wildlife corridors, etc.

This project consists of two (2) phases: Phase I was recently completed in Fiscal year (FY) 2005-2006 and consisted of assessing the existing databases for accuracy and completeness and acquiring databases from outside sources to fill those gaps where needed. Phase I resulted in a preliminary Biological Resources Constraints map that was created using a constraints model that was developed using the standard modeling tools included with the Environmental Systems Research Institute (ESRI) ArcGIS Desktop software version 9.2, which is the software used by the County. After reviewing more than 100 datasets, the information was classified into five resource categories: wetlands, critical habitat, species, habitat, and vegetation. Each resource category was assigned a weight to contribute towards the overall constraints analysis. Ranking of the datasets was done within the model. The resulting preliminary biological constraints map indicated areas within the county that were ranked as high, moderate, or unknown sensitivity. Areas indicated as "unknown sensitivity" are areas where sensitive resource data are lacking or severely limited, and/or confidence about data accuracy and completeness

is low. Areas indicated as "moderate sensitivity" are areas where sensitive resource data are limited, and/or confidence about data accuracy and completeness is moderate. Areas indicated as "high sensitivity" are areas where sensitive resource data are available and/or confidence about data accuracy and completeness is high.

Not all available databases could be acquired in time to be included in the preliminary biological resources constraints map. Therefore, the first step in Phase II will be to acquire those available databases from other agencies and organizations and add them to the existing ArcView model to create a revised Preliminary Biological Resources Constraints Map. The modified Preliminary Biological Resources Constraints Map shall be used to assist the consultant in determining appropriate areas to acquire data from aerial photography and field surveys.

Phase II of the project, included in this RFP, would involve conducting a Biological Resources Inventory and creating a county-wide Biological Resources Constraints Map within and adjacent to urban areas (i.e. urbanizing areas) and rural areas. Ideally, a constraints map would include all biological resource data as well as other constraints such as noise and traffic. However, the most imminent need is to identify biological constraints. Once the Biological Resources Constraints Map has been prepared for biological data, it can be amended in the future to include other natural resource data (i.e. archaeology, paleontology, water, and visual resources). Finally, other constraints such as traffic and noise can be included in the constraints map.

Oak Woodland Inventory

Included within the Biological Resources Inventory is an Oak Woodland Inventory which would acquire data about the species, distribution, density, age, and health of the county's oak woodland resources. The inventory would be used to establish baseline data and trends as part of the Voluntary Oak Woodlands Management Program to guide the conservation of oak resources within the county.

The May 2006 Grand Jury report on Oak Tree Preservation in San Luis Obispo County recommended that the County implement an oak tree protection ordinance. In response to this recommendation, the County Board of Supervisors convened an Oak Resource Committee to review options. The Board approved the Committee's recommendation for the County to implement a Voluntary Oak Woodlands Management Program to guide the conservation of oak resources within the county, rather than implement a more costly and difficult oak tree ordinance. The Board adopted the following five recommended actions from the Committee:

1. Direct the Planning Department to work with qualified consultant(s) to conduct a scientific assessment of the county's oak woodlands, establishing baseline data and trends. This would be part of a voluntary program and could be funded partially with grant funding.

2. Have the Planning Department bring back a proposal on staffing to develop and implement a Voluntary Oak Woodlands Management Program; provide staff assistance to the Native Tree Committee; work in concert with the U.C. Cooperative Extension on oak resource programs; write grant proposals, secure funding, and establish local programs to allow oak mitigation funds to be used in San Luis Obispo County, (i.e. SB 1334, Kuel Bill); and work with landowners, resource agencies, volunteer groups and others to promote voluntary management of oak woodland resources. The committee recommended that the position be funded by the County General Fund and future grants.

3. Direct the Panning Department to establish a mechanism for the Planning Department to track all native oak tree removals and replacements related to permitted development and monitor

long term. This would be part of establishing the baseline data and trends in recommendation 1 above.

4. Direct the Planning Department to review and update, as necessary, the oak tree replacement program in conjunction with recommendation 1 above.

5. Direct the Planning Staff to report back to the Board in six (6) months on the status of implementing the Committee's recommendations.

This RFP includes conducting a county-wide oak woodland inventory, as part of the Biological Resources Inventory. The Oak Woodland Inventory would be used to establish baseline data and trends for management and protection of oak woodlands in the county. After an oak woodland database is established, recommendations 3 and 4 above can be implemented.

1.2 Uses for Biological Resources Inventory and Oak Woodland Inventory

In addition to being included in and updating the Conservation Element, the Biological Resources Inventory, Oak Woodlands Inventory, and Biological Resources Constraints Map would be used for several purposes:

A. CEQA Compliance

The Biological Resources Constraints Map would assist the County in applying appropriate and consistent mitigation to projects as required by the California Environmental Quality Act (CEQA). The County will have more information available when making decisions about whether or not an EIR is required due to potential significant environmental impacts. This information will also assist in modifying projects to minimize or avoid impacts to sensitive biological resources. If sensitive resources are not present, this information will result in streamlining environmental review.

A. Planning Future Housing Developments

The County is mandated by state law to designate enough land for affordable housing. The County needs to identify areas where housing developments can be built that do not conflict with sensitive resources or are not subject to environmental constraints. Urban areas or areas adjacent to urban areas are the most likely areas where housing developments will be focused, since these areas tend to have fewer environmental constraints and are more suitable to additional development. A Biological Resources Constraints Map would be used to locate housing developments outside of sensitive resource areas, as part of the 2008 Housing Allocation Plan and help expedite meeting the County's housing needs.

B. Community 2050 or Other Community Outreach projects

The County has been partnering w/ SLOCOG, LAFCo and APCD in sponsoring Community 2050 workshops which involve public input in planning for communities in the year 2050. A Biological Resources Constraints Map would be used in the Community 2050 workshops to assist in implementing Smart Growth principles and planning communities outside of biologically sensitive areas

C. Land Use Decisions

A comprehensive county-wide Biological Resources Constraints Map would assist County Planning staff, decision makers, landowners, and developers in predicting constraints to development posed by sensitive biological resources on specific parcels. The database will assist planners and decision makers in their land use decisions and by identifying conflicts between sensitive biological resources and development. GIS map layers can be developed for areas of high and low development potential throughout the county and overlain with the biological resource data layers. This information would also be valuable for updating local area plans.

D. Countywide Plan

A major revision of the Land Use Element of the General Plan, focused on the rural areas, is envisioned to create a county-wide plan for regional growth issues. The plan would also focus on the interface between urban and rural areas. A Biological Resources Constraints Map would support the analysis of potential urban growth and development of policy.

E. Voluntary Oak Management Program

Oak woodlands are important biological resources that contribute to the heath of the environment. The County has limited information on the extent, age, density, and health of oak woodlands within the County. The Oak Resources Committee strongly recommended to the Board that we conduct an inventory to determine the status of oak woodlands in the County. The inventory would be the basis to determine the need for future voluntary oak management programs and to help ensure that valuable oak woodland resources are maintained in a viable state.

F. Implement SB 1334 (Kuel Bill)

SB 1334 requires the County to address oak woodland impacts from projects and to require mitigation for those impacts through the CEQA process. Completing an oak woodland inventory is a necessary step for the County to determine whether oak woodlands will be impacted by a project. The County can then establish local programs to allow oak mitigation funds to be used in San Luis Obispo County.

Section 2 - Scope of Work

2.1 General Requirements

The Biological Database Assessment and Preliminary Biological Resource Constraints Map shall meet County standards for inclusion in General Plans, Local Area Plans, and the Conservation Element. Refer to John Kelly from the County Geographic Technology and Design section for County map standards (see section 2.8 for detailed GIS data requirements).

2.2 Specific Requirements

A. Phase II, Part 1. Database Acquisition and Revised Preliminary Biological Resources Constraints Map

Task 1. Review Final Database Assessment Report prepared by LSA Associates (December 2006), from Phase I of this project to identify biological resource databases available from other agencies and

organizations that could be added to the County GIS but were not available by the time Phase I was completed.

Task 2. Acquire additional available biological resources databases for County GIS system, and prepare revised Preliminary Biological Resources Constraints Map, and Database Acquisition Report. The consultant shall contact those agencies and organizations to obtain those databases and coordinate with John Kelly from the County Geographic Technology and Design section to add them to the County GIS. The databases must be in a format compatible with the County GIS. After the data have been incorporated into the County GIS, the consultant shall re-run the ArcView model used in Phase I of the project, using the newly acquired data (as well as the other County GIS data), and prepare a revised Preliminary Biological Constraints Map. This map shall be used to assist the County and consultant in determining the target areas for data acquisition from aerial photography and field surveys (i.e. Phase II, Parts 2 and 3). The constraints map shall be used to indicate where data is scarce or absent, or where data conflicts between different sources. All GIS data provided to the County must be in a format compatible with the County GIS and must include metadata in a format to be determined by the County. Refer to Section *2.8 GIS Database Format* for additional information.

Deliverable: *The consultant shall provide **biological resources GIS map layers** to the County, based on acquired databases that identify existing county-wide biological resources*. The GIS map layers shall be provided in a format compatible with the County GIS system. Refer to Section *2.8 GIS Database Format* for additional information.

The County shall review and submit comments on the GIS layers, after which the Consultant shall incorporate the County's changes into the GIS layers. The final revised GIS layers shall be submitted to the County **two weeks** after receiving comments from the County.

Deliverable: The Consultant shall submit five (5) printed copies and one (1) electronic version of a Draft Revised Preliminary Biological Resources Constraints Map to the County.

The County shall review and submit comments on the Draft Revised Preliminary Biological Resources Constraints Map, after which the Consultant shall incorporate the County's changes into the final map. Five (5) printed copies and one (1) electronic version of the final revised map shall be submitted to the County **two weeks** after receiving comments from the County.

Deliverable: The Consultant shall submit five (5) printed copies and one (1) electronic version of *a Draft Database Acquisition Report to the County.*

The Database Acquisition Report shall summarize the databases identified in the Final Database Assessment Report prepared by LSA Associates (December 2006), from Phase I of this project that are available from other agencies and organizations and could be added to the County GIS but were not available by the time Phase I was completed. The report shall summarize the attempts made to acquire the databases, the databases acquired, and the reasons for not acquiring other databases, if applicable. The report shall be in the same format as the Final Database Assessment Report prepared by LSA Associates (December 2006).

The County shall review and submit comments on the Draft Database Acquisition Report, after which the Consultant shall incorporate the County's changes into the final report. Five (5) printed copies and one (1) electronic version of the final revised report shall be submitted to the County **two weeks** after receiving comments from the County

B. Phase II, Part 2. County-wide Biological Resources Inventory from Aerial Photography

Task 1. Research biological mapping programs used by other counties and organizations to ensure compatibility of San Luis Obispo County biological mapping data for data sharing capabilities and ensure that the most up-to-date methodologies are employed to map and survey resources. Santa Barbara and Ventura Counties have undertaken biological resource mapping programs (refer to the Conception Coast Project at **http://conceptioncoast.org/projects_rcg_report.html**). Other Counties may have undertaken similar resource mapping projects. It would be beneficial to the County if its biological inventory and mapping project were done consistently with other counties and agencies so that data can be shared between counties. This is especially important for biological resources that cross County boundaries. Researching the techniques employed by other counties would also ensure that the best available techniques are used to acquire data and that the scale is appropriate for the desired purposes. The Consultant shall research the resource mapping techniques employed by Santa Barbara County, Ventura County, and other counties and agencies, as applicable. The Consultant shall communicate those techniques to the County through meetings and/or websites, demonstrations, or written materials. The County may choose to revise the scope of work for Phase II to ensure that the best available techniques and appropriate scale are used.

Task 2. Research the Native Tree and Biological GIS Mapping Inventory conducted by East West Forestry Associates for the City of Atascadero (January 2007). The City of Atascadero developed a forest and biological resources inventory methodology to conduct a comprehensive inventory of oak woodland resources within the city limits of Atascadero. This project digitized and classified vegetation type polygons for the entire City and Colony. Polygons were created using Ecognition software and manual methods. A woodland and forest type map was prepared that delineated and classified 6959 polygons using the Wildlife Habitats Relations (WHR) used by the Department of Fish and Game. The project also included a tree inventory of 163 plots that described number and species of trees, tree size class, canopy density, assessment of the tree condition, analysis of tree regeneration, ground cover, and understory vegetation.

The Consultant shall research the methodologies employed by the City of Atascadero and provide recommendations to the County about how a similar inventory can be conducted county-wide. The Consultant and County shall jointly decide whether the same or different methodologies shall be employed and whether WHR or Sawyer and Keeler-Wolf vegetation associations are more appropriate and can be accommodated with the project budget.

Task 3. Use most recent available aerial photographs available from Air Photo U.S.A. and other public agencies such as the U.S. Forest Service, California Army National Guard, Department of Water Resources, etc. to map vegetation associations , and biological resources county-wide (e.g. both urbanizing and rural areas. Aerial photography shall also be used to conduct an oak woodland inventory county-wide. The mapping for both the biological resources inventory and the oak woodland inventory shall be conducted at a scale that is appropriate to identify sensitive biological resources county-wide and can be accomplished with the available budget for the project. The scale shall be jointly determined by the County and the Consultant. If funding is not available to map the entire county using aerial photography, the County shall prioritize the areas in which to focus aerial mapping efforts which shall focus on areas where existing data is scarce or absent, or where data conflicts between different sources. The county may also investigate the possibility of using different methodologies in different parts of the county. Unless the County and the Consultant decide upon another classification jointly, the Consultant shall use the vegetation classification system of John Sawyer and Todd Keeler-Wolf.

Task 4. Ground-truth selected locations within the county to determine accuracy of biological resource inventory and oak woodland inventory from aerial photography.

Task 4. Incorporate biological resource and oak woodland GIS data from aerial photography into the County GIS system.

Task 5. Prepare county-wide Biological Resources Constraints Map from Aerial Photography and Biological Resources Inventory from Aerial Photography Report.

Deliverable: *The consultant shall provide **biological resources GIS map layers** to the County, based on aerial photography mapping, that identify existing county-wide biological resources, including oak woodlands*. The GIS map layers shall be provided in a format compatible with the County GIS system. The Consultant shall coordinate with Mr. John Kelly from the County Geographic Technology and Design section for acceptable formatting for the GIS layers.

The County shall review and submit comments on the GIS layers, after which the Consultant shall incorporate the County's changes into the GIS layers. The final revised GIS layers shall be submitted to the County **two weeks** after receiving comments from the County.

*Deliverable: The Consultant shall provide to the County five (5) printed copies and one (1) electronic version of the draft **Biological Resources Constraints Map from Aerial Photography.*** The Biological Resources Constraints Map from Aerial Photography shall consist of GIS layers that are compatible with the County's GIS system. Biological resources shall be ranked using the ArcView model created in Phase I of this project. Refer to Section *2.8 GIS Database Format* for additional information.

The County shall review and submit comments on the draft Biological Resources Constraints Map from Aerial Photography, after which the Consultant shall incorporate the County's changes into a final constraints map. Five (5) printed copies and one (1) electronic version of the final report shall be submitted to the County **two weeks** after receiving comments from the County.

Deliverable: *The Consultant shall provide to the County five (5) printed copies and one (1) electronic version of the draft* ***Biological Resources Inventory from Aerial Photography Report****.* The Biological Resources Inventory from Aerial Photography Report shall describe the methods employed to map biological resources from aerial photography, areas mapped or not mapped (as appropriate), and mapping scale used. For any ground truthing employed, the report shall also include the time of the surveys, personnel conducting the surveys, the methodologies employed, and the survey results. The report shall include printed copies of the GIS maps showing locations of biological resources that were inventoried during aerial mapping or field surveys. The Biological Resources Constraints Map from Aerial Photography shall be GIS layers that are compatible with the County's GIS system. Refer to Section *2.8 GIS Database Format* for additional information.

The County shall review and submit comments on the draft Biological Inventory from the Aerial Photography Report, after which the Consultant shall incorporate the County's changes into a final report. Five (5) printed copies and one (1) electronic version of the final report shall be submitted to the County **two weeks** after receiving comments from the County.

C. Phase II, Part 3. County-wide Biological Resources Inventory from Field Surveys

Task 1. Using the Biological Resources Constraints Map from Aerial Photography, the consultant, with input from the county, will identify areas for potential ground surveys where important biological resources may occur, but where data is scarce or lacking, and for which aerial photography cannot provide information.

Task 2. Research landowners of target urban areas identified in Task 1 and obtain landowner permission for access to property.

Deliverable: The Consultant shall provide to the County five (5) printed copies and one (1) electronic version of the draft ***Report on Target Areas for Field Surveys.*** This report shall identify locations for field surveys that contain potential important biological resources, but where data is scare or lacking and for which aerial photography cannot provide information. The Report on Target Areas for Field Surveys shall describe the landowners of properties to be surveyed, the reasons why data cannot be obtained from aerial photographs (such as potential resources underneath tree canopies), and documentation of attempts made by the Consultant to gain access to the property for surveys. If property access is not granted by private landowners, the report shall discuss alternatives to obtain the required data. The report shall include printed copies of the GIS maps showing the target areas for field surveys.
The County shall review and submit comments on the draft report, after which the Consultant shall incorporate the County's changes into a final report. Five (5) printed copies and one (1) electronic version of the final report shall be submitted to the County **two weeks** after receiving comments from the County.

Task 3. Conduct on-the-ground county-wide biological resource field surveys to identify and inventory biological resources not identifiable from aerial photography. Conduct field surveys to inventory oak woodland resources including tree density, tree numbers, trunk diameter, and health of the trees.

Task 4. Incorporate biological resource field survey data and oak woodland inventory data into the County GIS system.

Task 5. Prepare County-wide Biological Resources Constraints Map from Aerial Photography and Field Surveys and Report on Biological Inventory from Aerial Photography and Field Surveys.

*Deliverable: The consultant shall provide **biological resources GIS map layers** to the County, based on field surveys that identify existing county-wide biological resources including oak woodlands.* The GIS map layers shall be provided in a format compatible with the County GIS system. Refer to Section *2.8 GIS Database Format* for additional information.

The County shall review and submit comments on the GIS layers, after which the Consultant shall incorporate the County's changes into the GIS layers. The final revised GIS layers shall be submitted to the County **two weeks** after receiving comments from the County.

Deliverable: *The Consultant shall provide to the County five (5) printed copies and one (1) electronic version of the draft **Biological Resources Constraints Map from Aerial Photography and Field Surveys.*** The Biological Resources Constraints Map from Aerial Photography and Field Surveys shall include the entire inventory effort from both aerial photography mapping and field surveys. The report shall address at a minimum, all sensitive resources described in *Section 1.1, Background and History*, of this RFP. The Biological Resources Constraints Map from Aerial Photography and Field Surveys shall consist of GIS layers that are compatible with the County's GIS system. Biological resources shall be ranked using the ArcView model created in Phase I of this project. Refer to Section *2.8 GIS Database Format* for additional information.

The County shall review and submit comments on the draft Biological Resources Constraints Map from Aerial Photography and Field Surveys, after which the Consultant shall incorporate the County's changes into a final constraints map. Five (5) printed copies and one (1) electronic version of the final report shall be submitted to the County **two weeks** after receiving comments from the County.

Deliverable: *The Consultant shall provide to the County five (5) printed copies and one (1) electronic version of the draft **Report on Biological Resources Inventory from Aerial Photography and Field Surveys**.* The Biological Resources Inventory from Aerial Photography and Field Surveys Report shall include all information in the Biological Resources Inventory from the Aerial Photography Report. The report shall also contain all information pertaining to the methodologies and results of the field survey portion of this project. The report shall address at a minimum, all sensitive resources described in *Section 1.1, Background and History*, of this RFP. The report shall include printed copies of the GIS maps showing locations of biological resources that were inventoried during field surveys. The Biological Resources Constraints Map from Aerial Photography and Field Surveys shall include GIS layers that are compatible with the County's GIS system. Refer to Section *2.8 GIS Database Format* for additional information.

The County shall review and submit comments on the draft Biological Inventory from aerial Photography and Field Surveys Report, after which the Consultant shall incorporate the County's changes into a final report. Five (5) printed copies and one (1) electronic version of the final report shall be submitted to the County **two weeks** after receiving comments from the County.

2.3 Field Surveys

Field surveys for plants, wildlife, habitats, and oak woodland resources shall be conducted using established biological protocols and be conducted at times when the resource is present and identifiable. Botanical surveys shall be conducted in accordance with the *Guidelines for Assessing the*

Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Biological Communities prepared by the Department of Fish and Game, revised May 8, 2000. In addition, botanical surveys shall be conducted when plants are flowering and identifiable to species, which may necessitate more than one survey at a particular location. Out-of-season or predictive surveys will not be accepted. Surveys for sensitive animal species shall be conducted using protocols established by the U.S. Fish and Wildlife Service and/or California Department of Fish and Game, as applicable.

2.4 Criteria for Resource Mapping

The Consultant shall coordinate with the County regarding the boundaries and extents of the areas for resource mapping and surveys. If funding is insufficient to map or survey all areas in the county, the County shall prioritize the areas based on development pressure, likelihood of growth, and other constraints.

2.5. Schedule

The Consultant shall identify in the proposal the timeframes needed to complete all the tasks for this Biological Resources Inventory and Constraints Map.

2.6 Meetings

The Consultant shall be available for a "kick off" meeting and to meet with one or more of the County or other agency staff when given advance notice. The cost estimate shall include the "kick off" meeting and at least six (6) other meetings. The Consultant shall also meet with outside agencies, universities, organizations, etc. to research potential databases for acquisition by the County. The number of outside meetings necessary to complete the terms of this contract shall be determined by the Consultant.

2.7. Sensitive Species, Vegetation, and Habitat Classifications and Aerial Photographs

A. Sensitive Species

Attachment 1 includes a list of known and potential sensitive species for the County. The Consultant shall review this list and suggest modifications to the list, as applicable.

B. Vegetation Classifications

Vegetation classifications shall follow the California Native Plant Society's "A Manual of California Vegetation" by John Sawyer and Todd Keeler-Wolf. This vegetation classification system has been adopted as the standard vegetation classification system by state and federal agencies.

C. Wildlife Habitat Classification

If available funding does not permit the use of the Sawyer and Keeler-Wolf vegetation classification system, and the County chooses instead to use a wildlife habitat classification system, the classification system shall follow the California Department of Fish and Game's Wildlife Habitat Relationships (WHR) Program.

D. Other Sensitive Resources

Other sensitive resources, besides sensitive habitats, plants, and animals, including, but not limited to wetlands, vernal pools, lakes, ponds, reservoirs, riparian areas, springs, seeps, rivers, perennial streams, intermittent streams, drainages, swales, and known or potential wildlife corridors, shall be identified during the aerial mapping and field surveys.

E. Aerial Photography

Resource mapping from aerial photography shall be conducted through the use of the most recent available photographs from Air Photo USA and from aerial photographs available from other public

agencies such as the U.S. Forest Service, California Army National Guard, Department of Water Resources, and other public agencies.

F. Resource Sensitivity Assignment

The Biological Resources Constraints maps created for this project shall rank the mapped biological resources using the ArcGIS modeling program created by LSA for Phase I of this project, which is available from the County. The same ranking system for each resource type in Phase I shall be applied to resources in Phase II. Resources shall be ranked as unknown sensitivity, low sensitivity, moderate sensitivity, or high sensitivity.

2.8. GIS Database Format:

The Consultant shall coordinate with Mr. John Kelly from the County Geographic Technology and Design section to ensure that all GIS data provided to the County is in a format that is compatible with the County GIS system.

Any geographic information electronically mapped as part of this project shall be provided as a .SHP file, a format compatible with ESRI's ArcView GIS software program, and shall be registered to the California State Plane NAD 83, Zone 5 coordinate system, units in feet. A .PRJ file shall be included reflecting this coordinate system.

All .SHP files submitted shall include sufficient metadata compatible with the ArcCatalog .XML format. This metadata shall include at minimum the following:

- An abstract containing a brief narrative summary of the data set including levels of accuracy and methods of data capture.
- Purpose for creating the data with a summary of the intentions with which the data set was developed
- Citation including the name of the organization and/or individual that developed the dataset
- Maintenance requirements noting the frequency with which changes (if any are necessary) are made to the data set after the initial data set is completed
- Theme key words associated with the data set
- Contact information for the creator of the data set and for the creator of the metadata
- Date the data was published

Descriptive text, thoroughly defining all features within each mapped data set, shall be incorporated into the data attribute tables. If codes or abbreviations were used for data attributes then a .LYR or other document explaining the codes shall be included. If maps were created in ArcView a .MXD file shall be included showing proper final map layout with any necessary symbolization. Map symbology shall be provided in a .LYR file which the County can import into any subsequent maps if desired.

2.9. Format of Deliverables

The format for all text documents, tables, charts, and illustrations shall be 8-1/2 x 11 vertical. If oversize inclusions are necessary, they will be 11 x 17 in size. Document covers for all related documents shall be coordinated so they appear as a "set". All drafts and final documents shall be two-sided, black ink, on white or light recycled stock paper. Electronic versions of reports shall be provided in MS-Word format and as .PDF documents on a CD. All GIS map products shall be provided as .PDF and .MXD with accompanying .LYR symbolization files. All GIS data used shall be provided on a CD or DVD. Refer to Section *2.8 GIS Database Format* for additional information.